

RADARSAT STANDARD, LANDSAT TM AND AIRBORNE GAMMA RAY DATA INTEGRATION: A CONTRIBUTION AIMING AT THE STUDY OF MINERALIZED GRANITES IN THE RONDÔNIA TIN PROVINCE

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This work is related to a research carried out in the northeast of the Rondônia Tin Province. The area is characterized by several tin-mineralized rapakivi granitic bodies with Proterozoic ages. The tropical rain forest environment favors the use of remote sensing data, particularly SAR imagery. The main purpose of the digital integration of the RADARSAT-1 with Landsat TM, airborne gamma ray and geological data was to provide an alternative tool aiming at the geological mapping of the tin - mineralized granitic bodies. The methodological approach was based on the digital integration of RADARSAT-1 with ancillary data through IHS transform, followed by visual interpretation of the SAR integrated products. RADARSAT-1 Standard 2 ascending data as a played an important role in the digital integration, due the topographic enhancement, which reflects drainage and relief patterns closely related to the structural trends. Despite of low spatial resolution, the use of the smallest pixel size for the gamma image has favored the SAR/Gamma integration, i.e.; it was possible to keep the hue (gamma response) and texture (radar response) attributes in the final integrated product. The interpretation of the SAR integrated products has provide important information about: (1) structural controls of the areas; (2) general discrimination of rock types, and (3) hydrothermal processes in the area. The results of this research have confirmed the importance of using digital multisource data integration based on SAR data as a routine for the geological mapping and mineral exploration in the Amazon region, particularly when airborne geophysical data is available.